

ABSTRACT

[0072] The present invention provides for reliably updating a file by making a backup copy of the portion of a file that includes changed data. The revised portion of the file is related to the other file portions through cross-linking of units. Upon completely updating the file and linking the data, old data is deleted. Thus, an entire file need not be duplicated for backing up an update. Furthermore, progress of the update may be tracked by marking the backup copy during the update process. The portions of a data object for the file may be mapped by marking a unit as valid if the data contained therein is current and linked if the unit is related to other portions of the file. In addition, other aspects of the present invention relating to the storage system updating a fragmented file are described.